UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,503	11/26/2003	Francois Le Maut	FR920020046US1	8954

25299 7590 08/27/2007

IBM CORPORATION
PO BOX 12195
DEPT YXSA, BLDG 002
RESEARCH TRIANGLE PARK, NC 27709

EXAMINER
O CONNOR, BRIAN T

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
08/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,503	LE MAUT ET AL.	
	Examiner	Art Unit	
	Brian T. O'Connor	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The attempt to incorporate subject matter into this application by reference to "Attorney Docket No. FR920020045US1", "Attorney Docket No. FR920020049US1", and "Attorney Docket No. FR920020052US1" is ineffective because essential material for the instant application must be incorporated by reference to a U.S. patent application publication. The Examiner suggests referring to the U.S. Application number (xx/yyy,yyy) or the PGPub document number (US xxxx/yyyyyyy) for the co-pending application.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having

ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 –14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calamvokis et al. (US 6,856,622; hereafter Calamvokis) in view of Chong et al. (US 6,212,582) and further in view of Counterman (US 6,222,858).

With respect to claim 1, Calamvokis discloses a routing system (108A, 104, 108B of Figure 1; column 1, lines 40-53) with a number of switching planes (106 of Figure 4) used in a crossbar (104, 106 of Figure 1) device for multiple input and output signal paths. The router also possesses a switch port with a buffer (102B of Figure 2A; column 4, lines 4-13; where the queue in the port is viewed as equivalent to a buffer).

Calamvokis fails to disclose a component of the system that compared a number of packets in the buffer with a threshold number and unstopping a flow of data packets when the number of packets in the buffer exceeds a threshold.

Chong discloses a system for managing traffic flow with chips (50a, 50b of Figure 1) that monitor the number of packets in a buffer (60a, 60b of Figure 1) and compare the number of packets to a threshold (TTH, HTH2, LTH2, HTH1, LTH1 of Figure 2; column 4, lines 3-18). If a threshold is exceeds then flow control is activated for a high or low priority data stream (320, 330, 350, 345 of Figure 3; column 4, lines 10-30; flow control is viewed as equivalent to unstopping).

Chong realizes the benefit of reduced data losses due to buffer overflow by monitoring a receiving buffer and adapting flow control based on the monitoring (column 3, lines 15-20). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use the components of Chong with their technique with the system of Calamvokis.

Calamvokis fails to disclose a component of the system storing the sequence number of a last received packet and the highest sequence number contained in the switching

planes and a component of the system to determine which switching plane to unstop by comparing the sequence number of the last received packet with each of the highest sequence numbers from each switching plane.

Counterman, in a invention of inverse multiplexing for a router, discloses a server (SERVER on left of Figure 8) that assigns sequence numbers to packets from different datastreams and a server (SERVERs on right of Figure 8) that determines where to stop of fill a datastreams based on the sequence number give to the datastream. This "simple K method" is used to manage flows that so lowest cell rate to highest cell rate is serviced (column 10, lines 64-67) or highest cell rate to lowest cell rate is serviced (column 11, lines 12-17).

Counterman teaches the benefit of reduced packet/cell loss by implementing a "simple K method" so that low priority cells are not stuck in a group of datastreams while high priority cells continue through the system (column 5, lines 23-29). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use the components of Counterman with their associated technique with the system of Calamvokis.

With respect to claim 2, Calamvokis further discloses an ingress port (102A of Figure 1) that assigns a sequence number to an incoming cell/packet (column 5, lines 1-9). The ingress port also gives the cell/packet a time T, taken from a scheduler in the router, that gives the cell/packet a transmission priority (column 4, lines 55-60).

With respect to claims 3(3/1) and (3/2), Calamvokis does not any pointers used to identify a memory locations using sequence numbers and priority levels.

Office Notice is taken that both the practice and benefit of using pointers with memory for implementing an algorithm are well known and expected in the art. It would have been obvious to use pointers to identify the packets ready for transmission in the table

of Calamvokis as the use of pointers is known to provide smaller and faster algorithm execution in the memory of devices.

With respect to claim 4, Calamvokis further discloses that the ingress port (102A of Figure 1) used credits to distribute incoming packets to the fabric switch (104, 106 of Figure 1; the credit algorithm is viewed as equivalent to load balancing incoming data packets).

With respect to claim 5, Calamvokis further discloses that each egress port (102B of Figure 1) contains a queue for temporary data storage (column 4, lines 6-13).

With respect to claim 6, Calamvokis further discloses that an egress port (102B of Figure 1) will received a reverse routing tag from a scheduler chip (120 of Figure 4; column 12, lines 15-35; column 13, lines 19-27), therefore the egress port must have a device for resequencing data packets in order for the egress port to use the reverse routing tag from the scheduler chip.

With respect to claim 7, Calamvokis further discloses that the egress port (102B of Figure 1) passing a packet to an egress linecard (108B of Figure 1; column 5, lines 20-22), thus the egress port must have a transceiver to output the packet to the egress linecard.

With respect to claims 8(8/1) and 8(8/2/1), Calamvokis fails to disclose a component of the system that counts a number of packets in the egress buffer.

Chong discloses a system for managing traffic flow with chips (50a, 50b of Figure 1) that monitor the number of packets in a buffer (60a, 60b of Figure 1) and therefore must have a counter or processor to perform the counting.

Chong realizes the benefit of reduced data losses due to buffer overflow by monitoring a receiving buffer and adapting flow control based on the monitoring (column 3, lines 15-20). Thus, it would have been obvious to one of ordinary skill in the art at the time

of the invention to use the components of Chong with their technique with the system of Calamvokis.

With respect to claims 9(9/8/1) and 9(9/8/2/1), Calamvokis fails to disclose a component of the system that decrements a number of packets in the egress buffer when a packet is sent out of the egress buffer.

Chong discloses a system for managing traffic flow with chips (50a, 50b of Figure 1) that monitor the number of packets in a buffer (60a, 60b of Figure 1) and therefore must have a counter or processor to decrement the number of packets when a packet is sent out of the buffer.

Chong realizes the benefit of reduced data losses due to buffer overflow by monitoring a receiving buffer and adapting flow control based on the monitoring (column 3, lines 15-20). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the components of Chong with their technique with the system of Calamvokis.

With respect to claims 10(10/1) and 10(10/2/1), Calamvokis fails to disclose counting and numbering data packet in an increasing sequence.

Counterman, in a invention of inverse multiplexing for a router, discloses a server (SERVER on left of Figure 8) that assigns sequence numbers to packets from different datastreams with an index "k(i)". The index "k(i)" is an increasing sequence (column 7, line 35) and is assigned in increasing order (column 10, lines 44-46).

Counterman teaches the benefit of reduced packet/cell loss by implementing a "simple K method" so that low priority cells are not stuck in a group of datastreams while high priority cells continue through the system (column 5, lines 23-29). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the components of Counterman with their associated technique with the system of Calamvokis.

With respect to claim 11, Calamvokis discloses a routing method (108A, 104, . 108B of Figure 1; column 1, lines 40-53) that uses a number of switching planes (106 of Figure 4) used in a crossbar (104, 106 of Figure 1) device for multiple input and output signal paths. The router also possesses a switch port with a buffer (102B of Figure 2A; column 4, lines 4-13; where the queue in the port is viewed as equivalent to a buffer).

Calamvokis fails to disclose a method of storing the sequence number of a last received packet and the highest sequence number contained in the switching planes and a component of the system to determine which switching plane to unstop by comparing the sequence number of the last received packet with each of the highest sequence numbers from each switching plane.

Counterman, in a invention of inverse multiplexing for a router, discloses a server (SERVER on left of Figure 8) that assigns sequence numbers to packets from different datastreams and a server (SERVERs on right of Figure 8) that determines where to stop of fill a datastreams based on the sequence number give to the datastream. This "simple K method" is used to manage flows that so lowest cell rate to highest cell rate is serviced (column 10, lines 64-67) or highest cell rate to lowest cell rate is serviced (column 11, lines 12-17).

Counterman teaches the benefit of reduced packet/cell loss by implementing a "simple K method" so that low priority cells are not stuck in a group of datastreams while high priority cells continue through the system (column 5, lines 23-29). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Counterman with the method of Calamvokis.

With respect to claim 12, Calamvokis fails to disclose comparing a number of packets in the buffer with a threshold number.

Chong discloses a method for managing traffic flow with chips (50a, 50b of Figure 1) that monitor the number of packets in a buffer (60a, 60b of Figure 1) and compare the number of packets to a threshold (TTH, HTH2, LTH2, HTH1, LTH1 of Figure 2; column 4, lines 3-18).

Chong realizes the benefit of reduced data losses due to buffer overflow by monitoring a receiving buffer and adapting flow control based on the monitoring (column 3, lines 15-20). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Chong with the method of Calamvokis.

With respect to claim 13, Calamvokis fails to disclose unstopping a flow of data packets when the number of packets in a buffer exceeds a threshold.

Chong discloses a method for managing traffic flow with chips (50a, 50b of Figure 1) that monitor the number of packets in a buffer (60a, 60b of Figure 1) and compare the number of packets to a threshold (TTH, HTH2, LTH2, HTH1, LTH1 of Figure 2; column 4, lines 3-18). If a threshold is exceeds then flow control is activated for a high or low priority data stream (320, 330, 350, 345 of Figure 3; column 4, lines 10-30; flow control is viewed as equivalent to unstopping).

Chong realizes the benefit of reduced data losses due to buffer overflow by monitoring a receiving buffer and adapting flow control based on the monitoring (column 3, lines 15-20). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Chong with the method of Calamvokis.

With respect to claim 14, Calamvokis fails to disclose a method of comparing the sequence number of the last received packet with each of the highest sequence numbers from each switching plane.

Counterman, in a invention of inverse multiplexing for a router, discloses a server (SERVER on left of Figure 8) that compares from the highest cell rate to lowest cell rate for servicing (column 11, lines 12-17).

Counterman teaches the benefit of reduced packet/cell loss by implementing a "simple K method" so that low priority cells are not stuck in a group of datastreams while high priority cells continue through the system (column 5, lines 23-29). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Counterman with the method of Calamvokis.

5. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calamvokis in view of Chong and further in view of Counterman and further in view of Kumar et al. (US 7,085,279 hereafter Kumar).

With respect to claim 15, Calamvokis discloses a routing method (108A, 104, 108B of Figure 1; column 1, lines 40-53) that uses a number of switching planes (106 of Figure 4) used in a crossbar (104, 106 of Figure 1) device for multiple input and output signal paths. The router also possesses a switch port with a buffer (102B of Figure 2A; column 4, lines 4-13; where the queue in the port is viewed as equivalent to a buffer).

Calamvokis fails to disclose a method of storing the sequence number of a last received packet and the highest sequence number contained in the switching planes and a component of the system to determine which switching plane to unstop by comparing the sequence number of the last received packet with each of the highest sequence numbers from each switching plane.

Counterman, in a invention of inverse multiplexing for a router, discloses a server (SERVER on left of Figure 8) that assigns sequence numbers to packets from different datastreams and a server (SERVERs on right of Figure 8) that determines where to stop of

fill a datastreams based on the sequence number give to the datastream. This "simple K method" is used to manage flows that so lowest cell rate to highest cell rate is serviced (column 10, lines 64-67) or highest cell rate to lowest cell rate is serviced (column 11, lines 12-17).

Counterman teaches the benefit of reduced packet/cell loss by implementing a "simple K method" so that low priority cells are not stuck in a group of datastreams while high priority cells continue through the system (column 5, lines 23-29). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Counterman with the method of Calamvokis.

Calamokis fails to disclose a computer readable medium to store his method.

Kumar, in the same field of endeavor, discloses a computer readable medium storing a program to perform a connection setup over a packet network in conjunction with a switching network. The computer-readable medium is an electronic, magnetic, optical, or other physical device or means that can be contain or store a computer program for use by or in connection with a computer-related system or method (column 7, lines 51-67). One skilled in the art would have clearly recognized that the method of Calamvokis would have been implemented in a software module. The implemented software would perform the function with less expense and more flexibility. Therefore, it would have been obvious to have use the technique in Calamvokis as is and implement it as taught by Kumar in order to reduce cost and improve the adaptability and flexibility of the networking system.

With respect to claim 16, Calamvokis fails to disclose comparing a number of packets in the buffer with a threshold number.

Chong discloses a method for managing traffic flow with chips (50a, 50b of Figure 1) that monitor the number of packets in a buffer (60a, 60b of Figure 1) and compare the

number of packets to a threshold (TTH, HTH2, LTH2, HTH1, LTH1 of Figure 2; column 4, lines 3-18).

Chong realizes the benefit of reduced data losses due to buffer overflow by monitoring a receiving buffer and adapting flow control based on the monitoring (column 3, lines 15-20). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of Chong with the method of Calamvokis.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. O'Connor whose telephone number is 571-270-1081. The examiner can normally be reached on 9:00AM-6:30PM, M-F, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian T. O'Connor
August 20, 2007

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600